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PHYSICAL TRAINING WITH SPECIAL CORRECTIVE WORK AND HYGIENE (INCLUDING SEX HYGIENE) IN GIRLS' HIGH SCHOOLS¹

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Physical training in the high school holds a very important place for many reasons, of which I shall discuss three.

1. *Lack of exercise in the adolescent girl.*—In the elementary schools, the children run and play at recess time, and both before and after school. They spend much time in playing games of various sorts and get considerable exercise in this way, apart from any special gymnastics they may have in school. On leaving the grammar grades and entering the high school, the environment undergoes a change. Everything is done to impress on the girl the fact that her childhood is over and that she is now a young lady. The ways of the high school are different. For instance, there is the morning assembly, the changing of rooms and teachers for each class period; one continuous session instead of two; an indoor recess and lunch, instead of going home in the middle of the day; and there is more personal responsibility as to her conduct.

As the girl grows, her hair is put up and her skirts are lengthened, one year alone making a really remarkable change in her appearance. Even the form by which she is addressed is changed, and instead of Mary, she is *Miss* Smith. Because she is a young lady, she is not supposed to run, or jump, or shout, or play on the street, and she very soon ceases to do any of them. Something ought to and *must* take the place of the free and childish exercise which she has given up; and the gymnasium, with its exercises to command, its apparatus work, folk dances, basket-ball and hockey games, is the next legitimate form of exercise which the girl should have if she is to grow up strong and well.

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2. *The anemia of adolescence.*—There are many ailments attending the period of adolescence, prominent among them being anemia, or in the growing girl chlorosis. The percentage of cases in all high schools is large. There is not an actual reduction in the number of red blood cells, but there is a reduction in haemoglobin, the coloring matter, which carries the oxygen, this reduction being due to rapid growth. The treatment of such cases is good, nutritious food, plenty of sleep, a moderate amount of mental work, and some exercise.

Exercise increases the force and frequency of the heart beat and deepens the breathing, thus supplying more oxygen to the impoverished blood and purifying more blood to be carried all over the body. The increased supply of blood to the surface induces perspiration and thus rids the blood of many impurities. It uses up food, and thus creates an appetite for more food. It squeezes the lymph out of the tissues, thus carrying off impurities that become stagnated in the cells.

It is not so much over-study, as lack of fresh air and exercise, that makes boys and girls break down in the high school. If the muscles are not used, they become weak and flabby, impurities collect in the cells, the oxygen inspired fails to keep up the percentage of haemoglobin in the blood, and anemia results. In the majority of cases, moderate exercise does good, especially where nervousness is present and that is in most cases, even up to the stage of chorea. A very few cases may be debarred from work where the heart action is poor.

A regular physical examination of all pupils should be made on entering the school. This should be thorough, including the heart, lungs, eyes and ears, nose, throat, and teeth, menstrual functions, nervous condition, general condition, and an orthopedic examination for deformities. All defects should be noted, and a card sent home to the parents notifying them that such conditions need immediate correction. The ideal system is one in which such cases are followed up and the parents forced to see that defects are remedied. So far, we have been able only to advise, not to insist on correction.

Every pupil in the school should have such a physical examination once a year and all changes should be noted. Since we have improved so markedly in Philadelphia in the physical examination of pupils in the elementary schools, there has been a noticeable improvement in our Freshmen in the high school, especially as to teeth, eyes, and nose and throat conditions.

3. *Rapid growth of the long bones.*—The age of puberty is known as the “awkward age,” and with reason. There is an actual disproportion between the limbs and the trunk. This rapid growth tends to deformity of the spine. The superincumbent weight of the body is too much for the spinal column, and there is a tendency to lean toward one side. Various deformities appear at this time of rapid growth. In school girls, they can be traced to carrying books on one arm on the hip; swinging them in a strap always on one side; the standing position at rest always being on one side; or sitting on one foot, etc. Spinal curvature, or scoliosis, results, with one low shoulder, and a high hip. If the case goes on, a compensatory curve, or a curve in the opposite direction, is formed in order to hold the body erect. This disease is entirely functional, there being no disease of the spinal column.

There is a higher percentage of cases among girls than boys. This is due to the fact that not only do boys naturally take more exercise than girls, but greater attention is paid to their physical development. Therefore there is a greater likelihood of early recognition of the deformity and consequently earlier consultation with the orthopedic surgeon.

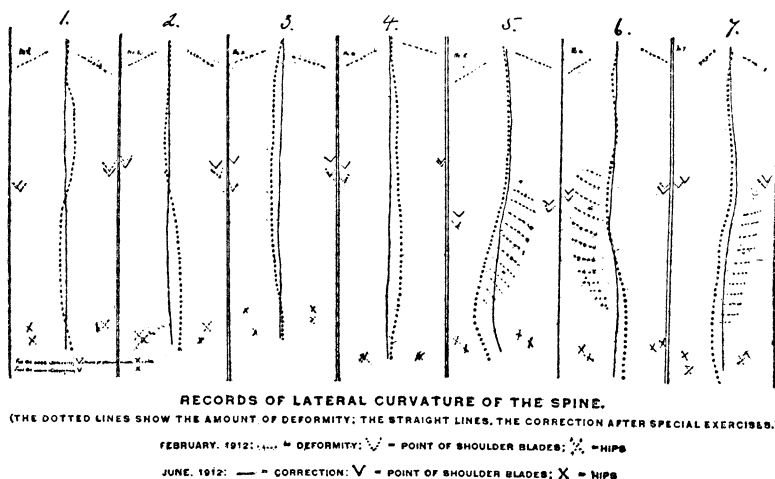
Some of the secondary results of scoliosis are pain in the back from nerve pressure; occipital headaches and neuralgias, from stasis of the circulation in the spinal canal; digestive disturbances; palpitation of the heart; capricious appetite; nervousness and various nervous symptoms, even including chorea in young children. Occasionally, a child will enjoy comparatively perfect health.

In the William Penn High School, we have been making an orthopedic examination for over one and a half years. The number of cases examined was 3,186. Those showing some orthopedic deformity were 2,019, or $63\frac{1}{3}$ per cent. By orthopedic deformity

is meant lateral curvature of the spine, which is shown by a low shoulder or a high hip, or both; round shoulders, or kyphosis; hollow-back, or lordosis; and a forward carriage of the head.

Each girl is examined separately, without removing her clothes. She takes an easy standing position, and we take the front, back, and side views. Only the worst cases are selected for special work. Their rosters are so arranged that they may take five, four, or three hours a week, according to the amount of deformity present; most of the girls take five hours, or one hour daily.

When a girl is selected for special work, she has a private examination, and removes her clothes above the waist, so that a strip of



adhesive plaster six inches wide and two feet long may be adjusted to her bare back. Then a record of the deformity is made on the plaster in blue pencil. The spinous processes are marked, also the different height of the shoulders, both above and at the lower angles of the shoulder blades. The variation in the hips is marked by a cross at the sacro-iliac joint, which always indicates any tilting of the pelvis. The plaster is then quickly removed, numbered, and placed on a page in a large record book, made especially for this purpose. It remains in the book until the end of the term, when it is removed, placed again on the girl's back and record made again in red pencil, showing the amount of correction (see illus-

tration). (For purposes of illustration, the deformity is shown in dotted lines, the correction in solid lines.)

The results of our work have been extremely encouraging, probably because we get the girls for an hour every day in the school week, and they are encouraged to continue the work at home. Every girl has her own special exercises, which she writes on a card and consults from time to time. As the classes are small, eight to twelve in a class, each girl receives individual attention from the teacher. The work is given by the regular gymnasium teachers under my own supervision.

In the one and a half years, we have had 110 pupils taking special work. Of these, all but about a dozen have been cured. Of those not cured, some were fixed types which cannot be corrected, while others were absent and did not get the work regularly. In two cases, the pupils failed because they would not do the work—they were lazy.

On going over the school records of these 110 specials, we found their general attendance was good; rather a large percentage left school without finishing. Their intellectual standing was significant, and is as follows: Good, 18; Fair, 33; Poor, 59. Whether their poor showing is due to the deformity or not is an interesting question. It is quite probably due to the secondary results of the deformity, but more statistics will have to be collected before a decision is made.

The money value of this treatment which is given freely to the public is a considerable one. A girl taking five hours weekly gets at least \$200 worth of expert treatment. For a class of forty, this makes a total of \$8,000 in one term or \$16,000 a year. This does not include the specialist's fee for two examinations for each girl, which would add from \$1,000 to \$2,000 to the yearly amount.

THE TEACHING OF PERSONAL HYGIENE AND SEX HYGIENE

The reasons for the necessity of teaching hygiene are clearly set forth by Mr. William D. Lewis, principal of the William Penn High School, in the following statement: "The last few years have witnessed a remarkable revolution against the old idea that it was the chief function of the school to impart a knowledge of many

things. The newer conception of education emphasizes the necessity of developing habits that will bring out the best possibilities of the individual, both physically and mentally. With this idea has come an intense interest in the physical welfare of the individual. So the old textbooks, with their exhaustive discussion of anatomy and physiology, are disappearing, and their place is being taken by manuals that give the young the instruction most needed to enable them to build up normal, healthy lives."

Heretofore, too much physiology and not enough hygiene has been taught in our schools. Rather than have pupils acquire a mass of knowledge concerning the circulation of the blood, the coats of the stomach, the construction of the eyeball, or the arrangement of the various parts of the brain, is it not more practical for them to know why milk is such a splendid food, what shoes are hygienic, and why; how to act in such emergencies as fainting, nose-bleed, and drowning; the germ theory of disease, and the intelligent use of disinfectants?

Because of this strong conviction, a series of talks was planned for my first-year class, which talks have since been embodied in a textbook, called *Hygiene for Girls*. Under "Personal Hygiene" are discussed such subjects as the value of exercise, proper positions in sitting and standing, baths and bathing, care of the hair and nails, suitable clothing, tight corsets, hygienic shoes, the values of various foods, the making of menus showing proper combinations, danger of fried food, ventilation and the value of fresh air, the dangers of dust, colds and their prevention, headaches, care of the eyes and ears, nervousness, fatigue, good and bad habits, etc.

Under "Community Hygiene," they learn in a simple way something about germs and their relation to disease; diseases carried by insects; tuberculosis; vaccination and antitoxins; narcotics and alcohol (viewed from the sociological standpoint), patent medicines, public work and emergencies.

One chapter in the book discusses in a simple way the reproductive organs with special hygiene of the body during menstruation. This lesson may be taught by the teacher, or she may leave the girls to read it themselves at home.

Personal and community hygiene need not necessarily be taught

by a physician. They may be taught in the departments of biology or physical training. It is best to give them in the first year in order to reach as many girls as possible.

The subject of sex hygiene, or better, eugenics, should be presented by the woman physician in the senior year. My first experience was four years ago when I gave three talks to the graduating class on puberty, reproduction, and the social evil. After the lectures, the girls were asked to write an honest opinion of them, and to state whether they thought these talks were of value, and if they would advise the continuation of them in the next succeeding classes. In order to get an unbiased opinion, the girls were asked to leave the papers unsigned. Of the 145 girls in this first class, not one spoke against the lectures, and all thought they should be continued and elaborated.

Since that time, the course has been expanded, so that it now includes a whole year or forty weeks. The first term is devoted to domestic sanitation and we discuss such questions as the home, its origin, foundation and influences, the water and food supply; heating, lighting and furnishings; ventilation; plumbing; garbage, ashes, and sewage, and their disposal; their relation to insects and disease; germs, their classification; disinfection; recognition of the common diseases of childhood; boards of health, quarantine, etc.

This brings us to the second term in which eugenics is taught. The first lessons are hints on home nursing, such as preparation of a sick-room, various kinds of diets, information about hot water bags, ice bags, taking a temperature, giving medicines, etc. These lessons prepare the way gently for a talk on puberty in the girl and boy; the reproductive organs; reproduction, considered biologically from the lower animal and plant forms up to the human being; the care of the pregnant mother; the baby, with use of a model—its clothes, with their prices, how to hold, wash, and dress it; the feeding and artificial foods, the sick baby, with a little of the common ailments of babies; venereal diseases, with their effects on the wife and children; prostitution, a little of its history, the white slave traffic, why girls enter this life and how they are often trapped into it; feeble-mindedness; and immoral tendencies

in dress, dancing, literature, the theater, art, etc., with special reference to behavior in offices, street cars, on the street, etc.

The old idea that equipment for efficiency was to keep the girl in absolute ignorance is giving way to the sane idea of preparing a girl to be a home-maker, a good wife, and a good mother. Such knowledge does not come by instinct, but by careful training. So important is this course deemed by our principal, that all girls, in all of the four courses in the school, are compelled to take this entire year's work in domestic sanitation and eugenics. The girls are quite enthusiastic over the work, and I have yet to receive one objection from a parent. On the other hand, I have received many encouraging words from parents and other relatives, and I hope to continue and broaden the courses each year.